

CHAPTER 1

INTRODUCTION

1-1. Purpose. This manual provides design guidance for the development or improvement of navigation and flood control projects in estuaries. Factors are presented that should be considered in providing safe and efficient navigation facilities with least construction and maintenance costs and/or providing protection from design floods. Considerations for preventing damage to the environmental quality of the estuary are also presented. The design engineer is expected to adopt the general guidance presented in this manual to specific projects. Deviations from this guidance are acceptable if adequately substantiated. It should be noted that coastal structures and approach channels are not included in this manual.

1-2. Appendices. Appendix A is the alphabetical listing of references cited in this manual. Appendix B discusses field data collection considerations along with an example. Appendix C presents an example numerical model investigation. Appendix D presents greater details of sedimentation analysis than provided in Chapter 4. Appendix E is a summary of generic or overall lessons learned from various Corps navigation projects, and Appendix F is a listing of tidal model investigations conducted at the US Army Engineer Waterways Experiment Station (WES). Appendices B through F have been included to provide general guidance and examples.

1-3. Training. The US Army Engineer Division, Huntsville, offers a short-term (1-week) training course entitled "Hydraulic Design for Tidal Waterways" (formerly called "Tidal Hydraulics") within the Proponent Sponsored Engineer Corps Training Program (PROSPECT). The course covers the latest engineering and design considerations for the development and improvement of Corps projects in tidal waters as contained in this manual. Other related courses on the TABS numerical modeling system, referenced in several of the chapters and appendices, are also listed in the PROSPECT Purple Book. Several other PROSPECT courses also are available on various topics directly related to tidal hydraulics. Interested Corps employees should check with their supervisor or Training Officer and the Purple Book for required qualifications and prerequisites for the particular training course. If qualified, the employee should follow the standard training application procedure for his or her District or Division.

1-4. Available Assistance. The USACE Committee on Tidal Hydraulics (CTH) provides expert consultation on problems related to tidal hydraulics. Address inquiries to the Chairman, CTH, WES, ATTN: CEWES-HV-Z, 3909 Halls Ferry Road, Vicksburg, MS 39180-6199.

1-5. References. Required references are listed as follows. Related references are listed in Appendix A.

a. EM 1110-2-1202 (Environmental Engineering for Deep-Draft Navigation Projects).

EM 1110-2-1607
15 Mar 91

b. EM 1110-2-1412 (Storm Surge Analysis and Design Water Level Determination).

c. EM 1110-2-1611 (Layout and Design of Shallow Draft Waterways).

d. EM 1110-2-1613 (Hydraulic Design of Deep-Draft Navigation Projects).

e. EM 1110-2-5025 (Dredging and Dredged Material Disposal).

f. ER 1105-2-50 (Environmental Resources).

g. ER 1110-2-1404 (Deep-Draft Navigation Project Design).

h. ER 1110-2-1457 (Hydraulic Design of Small Boat Navigation).

i. ER 1110-2-1458 (Hydraulic Design of Shallow Draft Navigation Projects).